

*Sub
H2
canted
edge-more-parallel*

plane, said at least one microcube having a projected area of less than 1 mm², said at least one microcube being canted edge-more-parallel.

*Sub
H6
F2*

26. (Amended) An article comprising an array of rectangular microcubes, at least some of which have no dihedral face-edges collinear with any dihedral face-edges of any adjacent microcubes, at least one of said rectangular microcubes having a projected area of less than 1 mm², said at least one microcube being canted either edge-more-parallel or face-more-parallel.

*Sub
H8
F3*

91. (Amended) A pavement marker for establishing on a finished roadway surface a marking visible from an oncoming vehicle, said pavement marker comprising a base member adapted to be mounted on the finished roadway surface, and a retroreflective signal means, said retroreflective signal means comprising an array of microcubes of claim 26.

*Sub
H10
F4*

94. (Amended) An article comprising an array of microcubes in which every region of three by three microcubes is nonrulable and in which at least one microcube in a said region of three by three microcubes is rectangular, said at least microcube having a projected area of less than 1 mm², said at least one microcube being canted edge-more-parallel.

REMARKS

The instant invention relates generally to arrays of non-rulable microcubes, at least one of said microcubes being non-hexagonal. The instant application defines microcubes as having a maximum area of about .0016 square inches (1 mm²). That is, the maximum area of a microcube

is no greater than the smallest area of a cube corner element that could be made by the prior art pin method. (See, e.g., U.S. 6,015,214, col. 4, lines 45-46).

In the Office Action of January 2, 2003, all pending claims except claims 5 and 6 were rejected under 35 U.S.C. § 102 based on the embodiment of Fig. 8 of the Heenan '090 reference, which shows square cube corners made by pins, the squares being 0.04 inch on a side. Accordingly, independent claims 1, 26, and 94 have been amended to recite that at least one microcube has an area less than 1 mm², i.e., less than the smallest size cube corner that could be made with the prior art pins techniques. It is respectfully submitted that this amendment is sufficient to overcome the current rejection based on the Heenan '090 reference.

In the same Office Action, claims 5 and 6 were rejected as obvious over the Heenan '090 reference in view of DE 4236799 to Gubela. Applicants note that Gubela '799 does not teach canted microcubes. Without agreeing with the basis of this rejection, applicants have amended independent claims 1 and 94 to recite that at least one of the recited microcubes is canted edge-more-parallel. These claims as amended substantially correspond to claims 1 and 4 of the previously issued U.S. 6,015,214. Claim 26 is amended to recite that at least one of the microcubes is canted either edge-more-parallel or face-more-parallel. These amendments finds support in the application as originally submitted, in the portions corresponding to col. 8, lines 28-31 and col. 17, lines 12-48 of parent case U.S. 6,015,214, and thus do not add new matter to the application. These divisional claims now are patentable for the same reasons as the '214 claims.

Applicants recently realized that Fig. 28 contains an error. Pursuant to 37 CFR 1.121(d), applicants submit herewith a new FIG. 28 (sheet 11 of 27 of U.S. 6,015,214), with the corrected part of the drawing circled in red. It is respectfully submitted that this correction does not add new matter to the application.

In view of the foregoing, a Notice of Allowance is respectfully requested.

Respectfully submitted,

Sandra B. Weiss

Sandra B. Weiss
Reg. No. 30,814
JONES DAY
77 West Wacker
Chicago, Illinois 60601-1692
(312) 782-3939

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) Examiner: J. Phan
HEENAN, Sidney A., et al.) Art Unit: 2872
Serial No.: 09/453,327)
Filed: December 2, 1999)
For: RETROREFLECTIVE ARTICLES)
HAVING MICROCUBES, AND TOOLS AND)
METHODS FOR FORMING MICROCUBES)

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MARKED-UP VERSION OF CLAIMS SUBMITTED WITH AMENDMENT

1. (Amended) An article comprising an array of microcubes, at least one of said microcubes being non-hexagonal, such that for every plane in space there are two adjacent microcubes for which at the place of the adjacency none of the face edges is parallel to that plane, said at least one microcube having a projected area of less than 1 mm², said at least one microcube being canted edge-more-parallel.

26. (Amended) An article comprising an array of rectangular microcubes, at least some of which have no dihedral face-edges collinear with any dihedral face-edges of any adjacent microcubes, at least one of said rectangular microcubes having a projected area of less than 1 mm², said at least one microcube being canted either edge-more-parallel or face-more-parallel.

91. (Amended) A pavement marker for establishing on a finished roadway surface a marking visible from an oncoming vehicle, said pavement marker comprising a base member

adapted to be mounted on the finished roadway surface, and a retroreflective signal means, said retroreflective signal means comprising an array of microcubes of claim [1]26.

94. (Amended) An article comprising an array of microcubes in which every region of three by three microcubes is nonrulable and in which at least one microcube in a said region of three by three microcubes is rectangular, said at least microcube having a projected area of less than 1 mm², said at least one microcube being canted edge-more-parallel.